operations. A smoother postoperative course is thus insured. The patient will be able to breathe deeply without discomfort, and to expectorate bronchial secretions more effectively. Following operations on the thoracic wall, the location of the incision will dictate whether a regional intercostal, or a paravertebral nerve block may be used to better advantage. When thoracotomy is performed an "internal" infiltration may be carried out, in which an adequate number of intercostal nerves are directly injected through the parietal pleura before the chest is closed.

Nerve block occasionally may help to distinguish between uncomplicated thoracic, and thoraco-abdominal wounds. Abdominal pain, tenderness, and rigidity frequently accompany a low but purely thoracic wound. These signs often disappear following injection of the lower thoracic nerves, and the abdomen becomes soft. When, however, abdominal signs are associated with intraperitoneal pathology, nerve block may be followed by cessation of pain and tenderness, but some involuntary rigidity usually remains.

TECHNIQUE

Intercostal nerve block is best performed with the patient in the lateral recumbent position and the scapula well forward. One per cent procaine solution is employed and five cc. are injected into each nerve. The addition of ten minims of 1-1000 epinephrine hydrochloride to each 100 cc. of procaine apparently prolongs the anesthetic effect. A small wheal is raised over the midpoint of the rib at its angle. The injection needle with bevel faced cephalad is inserted to the rib, then redirected until the point just clears the inferior margin of the same rib. It is then advanced 0.5 cm., and if aspiration is negative for blood, the procaine solution is injected.

Paravertebral injection may be performed with the patient either prone or in the lateral recumbent position. The sites of injection are approximately 4 cm. from the midline and exactly opposite the spinous processes. These points are directly over the transverse processes. A needle at least 8 cm. in length is needed, with a small piece of loose rubber over the shaft to aid in measuring the depth to which the needle is to be inserted. Each needle without the syringe is introduced perpendicularly through an intradermal wheal until the dorsal surface of the transverse process is touched (usually 4 cm.). The small rubber guide is adjusted on the shaft of the needle approximately 3 cm. from the skin surface. With the bevel faced toward the midline, the needle is then slightly withdrawn, redirected anteromedially and passed just below (or above) the transverse process, sliding along the body of the vertebra to the depth indicated by the marker. This places the point of the needle retropleurally in the region of the thoracic ganglia, and injection will usually anesthetize both the sympathetic chain and the intercostal nerve. Prior to infiltration, aspiration is done in two planes to rule out the possibility that the needle has entered the pleural cavity, an extension of the subarachnoid space or a blood vessel. Five cc. of one per cent procaine solution are then injected.

SUMMARY AND CONCLUSIONS

Obliteration of pain is an important step in the treatment of thoracic trauma. Recovery from shock is speeded. obstructing bronchopulmonary secretions are raised more efficiently, and the patient may be transported with greater safety and comfort. Absence of pain following thoracic operations will simplify postoperative care.

It has been emphasized that incapacitating pain may be associated with contusions of the thoracic wall, fractured ribs, and wounds of various types. The rôle of intercostal and paravertebral nerve block in relieving thoracic wall pain of traumatic origin has been described and the techniques of injection have been presented. In treating battle injuries, the reasons for preferring a regional type of block instead of local infiltration have been given. Since nerve block has been employed, thoracic adhesive strapping for the control of pain has been discarded.

Brief case histories have been presented which illustrate the use of nerve block in different situations.

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ACROPARESTHESIA

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THE present knowledge of this disease dates back about fifty years to the work of Schultze who in 1892[1] so well described it and gave it its name. Then with the work of Nothnagel we find presented before us two general types in which to divide these cases. The Schultze type in which there are no visible vasomotor symptoms, and the Nothnagel type in which these symptoms are present. Dr. R. Cassirer[2] in reviewing 162 cases estimates that about 25 per cent belong to this latter type.

After reviewing the recent literature and our own cases, it seems proper to consider this latter type an early Raynuad's in harmony with Spiegel[3] and eliminate them from this consideration. Further, this class is relatively rare, and also does not respond well to the same line of treatment as the Schultze type. This latter fact tends to uphold the belief that they belong with Raynuad's disease.

It is appropriate to refresh the mind briefly with the etiology, symptoms, and treatment of this disease before considering a rather typical case specifically.

ETIOLOGY AND SYMPTOMS

Acroparesthesia is the name applied to a sensory disturbance in the extremities, particularly the fingers consisting of sensations of burning, tingling, pricking, stiffness, and especially numbness or the feeling of the member of being asleep. Some writers report pain[4] and pallor but it is very rare in this class. Also the presence of radiculitis[5] is to be doubted. Putman[6] explained that these sensations are due to a decrease of blood flow in the extremities following a constriction of the arteriols which in turn is due to increase tonus of the Vegetative

nervous system. There are two or more salient facts that tend to substantiate this as the leading cause.

1. The condition is worse the first thing in the morning and in cold weather or when the extremities are chilled. With the relaxation of the body organism at night, there is a dilatation of the blood vessels with a cessation of symptoms which return upon arising in the morning because of the constricting of these vessels as mentioned above.

2. Acroparesthesia is found chiefly in women during the climacteric at which time there is an imbalance of the endocrine glandular system which in turn has an influence on the Vegetative nervous system and thus influences the flow of blood.

Sinkler[7] goes further and states that he thinks that it is due to faulty circulation of blood in the peripheral nerve fibers themselves.

TREATMENT

The treatments suggested are legion which would lead one to believe that there is no succesful remedy, especially when some improve without any treatment, when in reality there are several good remedies to chose from. Any anemia or avitaminosis should of course be corrected. Following are listed five remedies of known value. 1. Estrogenic hormone if patient is in the climacteric. Ten thousand units weekly is usually sufficient. 2. Hot and cold contrast baths to the afflicted extremities. These are conducted by immersing the limbs alternately in hot and cold water, first in water as hot as can be borne for three minutes, then one-half minute in real cold water. This treatment should be continued for twenty to thirty minutes once or twice daily. 3. Diathermy to the limbs. A good combination is to use the contrast baths one time daily and the diathermy one time daily. On the whole the contrast baths have proven more satisfactory than the diathermy because they tend to bring about a more healthy condition of the skin. 4. Niacin in amounts ranging from 50 to 100 milligrams three times daily. 5. Acetylcholine.

REPORT OF CASE

CASE 1.—This patient came into my office two years ago complaining of numbness and tingling of the hands and feet ("pins and needles") which had bothered her for six months. The condition was worse in the morning usually clearing up in two or three hours but sometimes lasted until noon. She had never had anything like it before and there was nothing in her history that pointed to a cause. The family was financially secure so the patient did only part of her own house work. She had been taking estrogenic hormone for several weeks because she had shown symptoms of the climacteric.

Physical Examination. The patient was a well developed white female of 45 who did not appear acutely ill, and was intelligent and coöperative. The examination showed no pathology in nose, throat, chest, or heart. Blood pressure was 135/80, pulse 76 and of good quality. The abdomen was normal and there was no abnormal pelvic condition.

Laboratory Tests. Urine was normal. Blood count showed no deficiencies. Hemoglobin 92 per cent, Red blood count 4,920,000, White blood count 6,400, Differential normal, Sedimentation rate within normal range.

Treatment. 1. Contrast baths daily. 2. Estrogenic hormone continued at 10,000 units weekly. 3. Niacin, 100 mgm. three times daily. This was reduced in three days to 50 mgm. three times daily because the patient complained of flushing. 4. Acetylcholine, 0.10 Gm. intramuscular three times weekly.

This patient felt improvement from the first treatment, which gradually continued until all symptoms cleared up. The treatment was continued for two weeks. After two weeks the acetylcholine injections were reduced to one weekly. The symptoms left completely after eight weeks of treatments and have not returned since. The patient has since sought to maintain a good tone to her skin by proper measures.

COMMENT

This case was different than the average in that the condition was present in the feet as well as the hands. Although it was quite evident that this was a case of the socalled menopausal acroparethesia, the trouble did not clear up with the use of estrogenic hormone alone. Again this patient did not belong to the working class as emphasized by Straus and Guttmann.[8] Further there was no reduction of strength such as noted by Ekbom.[9]

DIAGNOSIS

While it is not the purpose of this paper to discuss conditions that can be confused with acroparethesia, it might be of value to name a few such as types of neurosis, peripheral nerve diseases as neuritis, spinal cord conditions as tabes, syringomyelia and disseminated sclerosis, endocrine disorders as tetany and acromegaly, or intoxications such as caused by ergotism.

SUMMARY

1. Acroparethesia is thought to be an entity distinct from cases of similar symptoms which show visible vasomotor symptoms. 2. In the majority of cases very simple methods of treatment suffice to clear up the trouble, even Swedish massage will many times turn the trick in mild cases.

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Nicolò Paganini (1782-1840).—The genius of Paganini was ever a delight to composer, performer and listener alike. Harsh parental treatment in childhood planted the seeds for his life-long precarious health which finally ended in tuberculosis of the lungs and larynx. At 52, he was a doomed man. One May evening, aroused as out of a lethargy, he took his violin and played before a portrait of Byron, whom he much admired. Suddenly, the violin and bow fell from his hands, he fainted, and the next morning was dead.—Warner's *Calendar of Medical History.*

Rufus of Ephesus, who lived in the reign of Trajan (98-117), gave the first description of traumatic erysipelas, epithelioma and bubonic plague.